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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,786	03/28/2001	Jacob M. Christensen	P 275035 P11030	1032
27496	7590	10/15/2004	EXAMINER	
PILLSBURY WINTHROP LLP			TON, ANTHONY T	
725 S. FIGUEROA STREET			ART UNIT	
SUITE 2800			PAPER NUMBER	
LOS ANGELES, CA 90017			2661	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<b>Application No.</b> 09/818,786	<b>Applicant(s)</b> CHRISTENSEN ET AL.	
	<b>Examiner</b> Anthony T Ton	<b>Art Unit</b> 2661	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-17, 19-22, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 14, 18 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

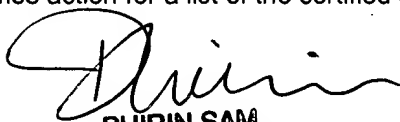
**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
**PHIRIN SAM**  
**PRIMARY EXAMINER**

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. **Claim 1** is objected to because of the following informalities:

Term “**the** transmission environment” in **line 7** is improper.

Examiner suggests changing this term to “transmission environment”.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 12, 13 and 15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claims 12 and 13** recite the limitation “**said factor**” in line 1. There is insufficient antecedent basis for this limitation in the claims.

b) **Claim 15** recites the limitations “**said past transmission environment**” in line 2; “**said current transmission environment**” in lines 2-3; “**said historical statistics**” in line 3; and “**said new statistics**” in line 3. There are insufficient antecedent bases for these limitations in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. **Claims 1, 3-9, 19 and 20** are rejected under 35 U.S.C. 102(e) as being anticipated by **Wetzel** (US Patent No. 6,388,990).

**a) In Regarding to Claim 1: Wetzel disclosed a system, comprising:**

a customer premise equipment for establishing a DSL connection via a copper line, said customer premise equipment connecting to said copper line (*see Fig.1: 132 (CPE) and 110 (DSL connection, copper line)*);

a DSL access multiplexer, connecting to said copper line, for establishing said DSL connection with said customer premise equipment via said copper line (*see Fig.1: 134 (DSLAM) and 110*), said DSL connection being established between said customer premise equipment and said DSL access multiplexer with a dynamic transmission rate determined based on transmission

environment (*see col.3 lines 3-8: 132, 110 and 134; col.6: lines 26-31 network congestion (transmission environment); and Fig.2: train to obtain speeds from 300 to a trained rate of 600 (dynamic transmission rate)*); and

a DSL connection optimizer for adaptively optimizing the transmission rate between said customer premise equipment and said DSL access multiplexer by re-initializing said DSL connection (*see Fig.6; and col.11 line 37-55: NOC 502 (DSL connection optimizer),DSL link reset (re-initializing)*).

**b) In Regarding to Claim 3: Wetzel disclosed a system comprising:**

a customer premise equipment for establishing a DSL connection via a copper line, said customer premise equipment connecting to said copper line (*see Fig.1: 132 (CPE) and 110 (DSL connection, copper line)*), said customer premise equipment establishing said DSL connection with an adaptively optimized transmission rate determined based on transmission environment (*see col.5 lines 53-65: DSL Modem 232*) and realized by re-initializing said DSL connection (*see col.11 line 37-55: DSL link reset (re-initializing)*); and

a DSL access multiplexer, connecting to said copper line, for establishing said DSL connection via said customer premise equipment and said copper line (*see Fig.1: 134 (DSLAM) and 110*).

**c) In Regarding to Claim 4: Wetzel further disclosed said customer premise equipment comprises:**

a DSL connection optimizer for adaptively optimizing said transmission rate on said DSL connection (*see Fig.2: 232*), said DSL connection optimizer determining to re-initialize said DSL connection based on connection statistics provided by said customer premise

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equipment (*see col.8 lines 4-13; Fig.6 and col.10 lines 47-56: the present facility conditions (connection statistics)*)).

**d) In Regarding to Claim 5: Wetzel disclosed a system comprising:**

a customer premise equipment for establishing a DSL connection via a copper line, said customer premise equipment connecting to said copper line (*see Fig.1: 132 (CPE) and 110 (DSL connection, copper line)*); and

a DSL access multiplexer, connecting to said copper line, for establishing said DSL connection via said customer premise equipment and said copper line, said DSL access multiplexer establishing said DSL connection with an adaptively optimized transmission rate determined based on transmission environment (*see col.5 line 66- col.6 line 14: DSL Access Multiplexer*) and realized by re-initializing said DSL connection (*see col.11 line 37-55: DSL link reset (re-initializing)*)).

**e) In Regarding to Claim 6: Wetzel further disclosed said DSL access multiplexer comprises:**

a DSL connection optimizer for adaptively optimizing said transmission rate on said DSL connection (*see Fig.2: 234*), said DSL connection optimizer determining to re-initialize said DSL connection based on the connection statistics provided by said DSL access multiplexer (*see col.8 lines 13-18; Fig.6 and col.10 lines 47-56: the present facility conditions (connection statistics)*)).

**f) In Regarding to Claim 7:** all claimed subject matters of this claim have been disclosed in both claim 3 and 5. Therefore, the rejections to claims 3 and 5 would apply to reject this claim as well.

**g) In Regarding to Claim 8: Wetzel further disclosed** said customer premise equipment comprises:

a first DSL connection optimizer for adaptively optimizing said transmission rate on said DSL connection (*see Fig.2: DSL modem 232*), said DSL connection optimizer determining to re-initialize said DSL connection based on the connection statistics provided by said customer premise equipment (*see col.8 lines 4-13; Fig.6 and col.10 lines 47-56: the present facility conditions (connection statistics)*).

**h) In Regarding to Claim 9: Wetzel further disclosed** said DSL access multiplexer comprises:

a second DSL connection optimizer for adaptively optimizing said transmission rate on said DSL connection (*see Fig.2: DSLAM 234*), said second DSL connection optimizer accessing connection statistics provided by said DSL access multiplexer (*see col.8 lines 13-18; Fig.6 and col.10 lines 47-56: the present facility conditions (connection statistics)*) and communicating with said first DSL connection optimizer to negotiate when to re-initialize said DSL connection (*see col.8 lines 18-26*).

**i) In Regarding to Claim 19: Wetzel disclosed** a method for a DSL connection optimizer, comprising:

gathering connection statistics about a DSL connection between a customer premise equipment and a DSL access multiplexer via a copper line (*see col.8 lines 4-26; and see Fig.6 steps 608 and 612*);

generating historical statistics based on said connection statistics to characterize past transmission environment on said DSL connection (*see Fig.2 and col.12 lines 41-47*);

generating new statistics based on said connection statistics to characterize current transmission environment on said DSL connection (*see Fig.2; and col.5 lines 41-65: training speeds 300, 400, 500, and so on, up to a maximum of several Mbps (new statistics)*); and

detecting a potential performance gain based on said historical statistics and said new statistics (*see Fig.2 and col.11 lines 20-36: the value TRMAX (new statistics) the subscriber rate SR (historical statistics)*);

**j) In Regarding to Claim 20: Wetzel further disclosed** said detecting comprises:

comparing said historical statistics and said new statistics to estimate a performance differential margin (*see Fig.4 step 406*); and

detecting said potential performance gain based on said performance differential margin (*see Fig.6 step 614*).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 2, 10-13, 15-17, 21, 22, 24 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Wetzel** (US Patent No. 6,388,990) in view of **Lu et al.** (US Patent No. 6,351,487) hereinafter referred to as **Lu**.

**a) In Regarding to Claim 2: Wetzel disclosed** all aspects of this claim as set forth in claim 1; and **Wetzel further disclosed** said DSL connection optimizer connects to both said



customer equipment and said DSL access multiplexer (*see Fig.5: 502 (DSL connection optimizer) connected to 534 (DSLAM) via link 504; and Fig.1: 134 (DSLAM) connected to 132 (CPE)*) determines to re-initialize said DSL connection based on the connection statistics stored in a **network operations center database** (*see col.11 lines 1-19*).

**Wetzel failed to explicitly disclose** connection statistics stored in both said customer premise equipment and said DSL access multiplexer.

**Lu disclosed** such connection statistics stored in both said customer premise equipment and said DSL access multiplexer (*see col.7 line 4 – col.8 line 4*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such connection statistics stored in both said customer premise equipment and said DSL access multiplexer, as taught by Lu with Wetzel, so that appropriate transmission status can be gathered for history information in both sides of a customer premise equipment and a DSL access multiplexer in a purpose of a DSL connection for adjusting a suitable bandwidth in a communications network. **The motivation** for doing so would have been to deliver a relatively high bandwidth over the conventional telephone copper wiring at limited distances. Therefore, it would have been obvious to combine Lu with Wetzel in the invention as specified in the claim.

**b) In Regarding to Claim 10: Wetzel disclosed** a system for a DSL connection optimizer, comprising:

a feasibility detector for detecting, based on said statistical information, whether there is a potential performance gain by re-initializing the DSL connection (*see col.11 lines 37-55: NOC 502 continues to monitor the DSLAM 534 over the data link 504 to detect whether the DSL link has been interrupted or reset*); and

a re-initialization determiner for determining when to re-initialize said DSL connection if there is a potential performance gain by re-initializing, detected by said feasibility detector (*see col.11 lines 20-55: the NOC 502 determines*).

**Wetzel did not clearly disclose** a statistics generator for generating statistical information about transmission environment along a DSL connection between a customer premise equipment and a DSL access multiplexer based on connection statistics.

**Lu disclosed** such a statistics generator for generating statistical information about transmission environment along a DSL connection between a customer premise equipment and a DSL access multiplexer based on connection statistics (*see col.7 lines 32-48; and col.8 lines 5-26: register 30 and generator 34*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a statistics generator for generating statistical information about transmission environment along a DSL connection between a customer premise equipment and a DSL access multiplexer based on connection statistics, as taught by Lu with Wetzel, so that transmission status can be gathered for history information of a DSL connection to adjust a suitable bandwidth in a communications network. **The motivation** for doing so would have been to a relatively high bandwidth over the conventional telephone copper wiring at limited distances. Therefore, it would have been obvious to combine Lu with Wetzel in the invention as specified in the claim.

c) **In Regarding to Claims 11-13: Wetzel disclosed** all aspects of these claims as set forth in claims 10, 19 and 20.

**Wetzel failed to explicitly disclose** said factor includes signal to noise ratio and cyclic redundancy check anomaly count.

**Lu disclosed** such a factor includes signal to noise ratio and cyclic redundancy check anomaly count (*see col.10 lines 54-59; and col.13 lines 9-53*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a factor includes signal to noise ratio and cyclic redundancy check anomaly count, as taught by Lu with Wetzel, so that transmission status can be gathered for history information of a DSL connection to adjust a suitable bandwidth in a communications network. **The motivation** for doing so would have been to a relatively high bandwidth over the conventional telephone copper wiring at limited distances. Therefore, it would have been obvious to combine Lu with Wetzel in the invention as specified in the claims.

**d) In Regarding to Claim 15: Wetzel further disclosed** said feasibility detector comprises:

a comparison unit for comparing said past transmission environment and said current transmission environment based on said historical statistics and said new statistics to generate a performance differential margin (*see Fig.2; and col.11 lines 1-19*); and

a potential performance gain detector for detecting a potential performance gain based on said performance differential margin (*see Fig.2; col.6 lines 32-39; and col.11 lines 37-43*).

**e) In Regarding to Claim 16 and 17:** all claimed subject matters of the method cited in these two claims have been disclosed in the system of claims 1 and 10. Therefore, the rejections to claims 1 and 10 would apply to reject these two claims as well.

**f) In Regarding to Claims 21 and 22: Wetzel disclosed** a method for a DSL connection optimizer as recited in claims 16 and 17. This method can be applied to reject these claims respectively for the same reasons as claims 16 and 17 because it is well known in the art that

method steps can be programmed to automate a process. The resulting program is considered as a computer-readable medium (*firmware*) that the apparatus uses to perform the method steps.

**Lu disclosed** a computer-readable medium (*see claims 19 and 20*).

**It would have been obvious** to include in **Wetzel** this well-known art, **the motivation being** to make a DSL connection optimizer operate automatically.

**f) In Regarding to Claims 24 and 25: Wetzel disclosed** a method for a DSL connection optimizer as recited in claims 19 and 20. This method can be applied to reject these claims respectively for the same reasons as claims 19 and 20 because it is well known in the art that method steps can be programmed to automate a process. The resulting program is considered as a computer-readable medium (*firmware*) that the apparatus uses to perform the method steps.

**Lu disclosed** a computer-readable medium (*see claims 19 and 20*).

**It would have been obvious** to include in **Wetzel** this well-known art, **the motivation being** to make a DSL connection optimizer operate automatically.

#### ***Allowable Subject Matter***

9. **Claims 14, 18 and 23** are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Examiner Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Anthony T Ton** whose telephone number is **571-272-3076**. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Ken Vanderpuye** can be reached on **571-272-3078**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-3076**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted  
by : ATT  
Anthony T. Ton  
Patent Examiner  
October 06, 2004



**PHIRIN SAM  
PRIMARY EXAMINER**